

## 4.0 ENVIRONMENTAL CONSEQUENCES

This chapter assesses the potential environmental consequences for all three beddown alternatives and the No Action Alternative.

Environmental impact analysis is a three-step process. The first step defined the proposed action and alternatives in Chapter 2. The proposed action and alternatives provide information for step two, identifying the environmental setting where project actions could result in potential environmental effects. This second step produces the affected environment in Chapter 3.

The third step is presented in this chapter, Chapter 4, where the Predator beddown alternatives from Chapter 2 are combined with the existing environmental setting from Chapter 3 for each potentially affected environmental resource. These environmental resources are interdependent. For example, construction at ISAFAF would require workers whose commuting could affect traffic and air quality. Construction could affect local habitat, which, in turn, could affect wildlife that depends on the habitat. These types of interrelationships explain why the EA is prepared by an interdisciplinary team.

The environmental impact analysis process is designed to focus analysis on those environmental resources that could potentially be affected by the Predator beddown proposed for ISAFAF. Potential effects may result from different aspects of an alternative, such as flying activities, personnel changes, or construction. Where possible, the potential consequences for each resource are quantified in terms of nature, magnitude, and duration.

### 4.1 AIRSPACE MANAGEMENT AND USE

The potential effects of the proposed beddown on the airspace management ROI (the regional air traffic environment) were assessed by considering the changes in aircraft operations and airspace uses that could occur relative to current conditions.

The type, size, shape, and configuration of individual airspace elements in a region are based upon, and are intended to satisfy, competing aviation requirements. Potential impacts could occur if air traffic in the region and/or the ATC systems were encumbered by changed flight activities. When any significant change is planned, such as new or revised defense-related activities within airspace areas, the FAA reassesses the airspace configuration to determine if such changes could adversely affect:

- ATC systems and/or facilities;
- Movement of other air traffic in the area; or
- Airspace already designated and used for other purposes supporting military, commercial, or civil aviation.

The creation of any of these conditions could constitute a significant impact.

#### 4.1.1 Alternative A

Under Alternative A, the same processes and procedures for Predator operations in Restricted Areas, MOAs, Class A, and Class D airspace currently being used would continue. All Air

Force operations involving the Predator would continue to comply with FAA stipulations for such flight. For flights within MOAs, the Air Force would continue to ensure that flight safety equaled that which would exist if a chase aircraft accompanied the Predator. Flight within MOAs would be publicized in regional airports, would not occur if the airspace had been released to the FAA, would only occur under VMC, and clouds would be avoided. Flights transiting through Class A airspace would continue to be flown under IFR, with a pre-approved flight plan filed with ATC. Management and control of airspace utilization is dynamic, and often situationally dependant. However, current procedures have proven effective. Additional communication capabilities will support line-of-sight and beyond line-of-sight Predator operations.

Under Alternative A, annual Predator sorties conducted in the NTTR airspace would increase from 1,080 to 2,988. This represents an increase of 1,908 sorties (approximately 176 percent). This equates to an increase of approximately 7.5 Predator sorties per day over current Predator operations in the NTTR airspace. This NTTR increase equates to an estimated 45 Predator flight hours per day. The most heavily used portion of the NTTR, R-4806, would have an approximate 11.7 percent increase in use.

Although a Predator sortie can be as long as 24 hours, an average of 6 hours per sortie is assumed for this analysis. Predator sorties occur throughout daily flying periods, and Predator activities are scheduled, coordinated, and integrated with other use of the airspace. This is in concert with current airspace management practices employed for the NTTR (personal communication, Callahan 2003).

Annual Predator sorties conducted in the R-2508 Range Complex, located about 80 nm southwest of ISAFAP, would increase from 174 to 960. On average, this would increase operations from approximately 0.7 to 3.8 sorties per day, reflecting an increase of an estimated 15 Predator flying hours daily. These Predator sorties would continue to transit from ISAFAP to the R-2508 Complex using Class A airspace under ATC control over remote areas. Predator sorties would not be in close proximity to other aviation activity. An additional three sorties per day would not be expected to be noted in the ATC system, and would have little or no impact on existing ATC services. Predator sorties using R-2508 would be scheduled with airspace managers at Edwards AFB, and Predator operations would continue to be coordinated and integrated with other aircraft operations occurring in R-2508 airspace.

#### **4.1.2 Alternative B**

Under Alternative B, the same processes and procedures for Predator operations in Restricted Areas, MOAs, Class A, and Class D airspace currently being used and applicable to Alternative A would continue. All Air Force operations involving the Predator would continue to comply with FAA stipulations for such flight. The stipulations include flight safety that equaled that which would exist if a chase aircraft accompanied the Predator, publication of flight with MOAs, VFR only in MOAs, and not entering clouds. Predator sorties would not occur in MOAs if the airspace had been released to the FAA. Flights transiting Class A airspace would be flown under IFR, with a pre-approved flight plan filed with ATC. Current procedures to manage and control the dynamics of airspace have proved effective. Additional communication capabilities will support Predator operations.

Under Alternative B, annual Predator sorties conducted on the NTTR would increase from 1,080 to 3,720. This represents an increase of 2,640 sorties (approximately 244 percent). This equates to an increase of approximately 10.5 Predator sorties, or 63 Predator flying hours per day over current Predator operations. Overall, in considering annual use of applicable elements of R-4806, the increase in Predator operations is an approximate 16 percent increase in use of the airspace. Predator sorties occur throughout daily flying periods, and Predator activities are scheduled, coordinated, and integrated with other use of the airspace. This is in concert with current airspace management practices employed for the NTTR (personal communication, Callahan 2003).

Annual Predator sorties conducted in the R-2508 Range Complex would also increase, from 174 to 960 (the same as under Alternative A). On average, this would increase operations from approximately 0.7 to 3.8 sorties per day, reflecting an increase of an estimated 15 Predator flying hours daily. These Predator sorties would continue to transit from ISAF AF to the R-2508 Complex using Class A airspace under ATC control over remote areas that are not in close proximity to other aviation activity. An additional three sorties per day would not be expected to be noted in the ATC system, and would have little or no impact on existing ATC services. Predator sorties using R-2508 would be scheduled with airspace managers at Edwards AFB, and Predator operations would continue to be coordinated and integrated with other aircraft operations occurring in R-2508 airspace.

#### **4.1.3 Alternative C**

Under Alternative C, the same processes and procedures for Predator operations in Restricted Areas, MOAs, Class A, and Class D airspace currently being used and applicable to Alternative A or Alternative B would continue. All Air Force operations involving the Predator would continue to comply with FAA stipulations described for Alternative A or Alternative B.

Under Alternative C, annual Predator sorties conducted on the NTTR would increase from 1,080 to 1,300. This represents an increase of 220 sorties (approximately 20 percent over the existing airspace use). This equates to an increase of less than one Predator sortie per day over current NTTR Predator operations. This increase in Predator operations would have minimal effect on the scheduling and use of the NTTR.

Annual Predator sorties conducted in the R-2508 Complex would increase from 174 to 210 under Alternative C. On average, this would increase operations from approximately 0.7 to 0.9 sorties per day. This addition in sorties would not be expected to be noted in the ATC system. There would be no discernible impact on the R-2508 airspace.

#### **4.1.4 No-Action Alternative**

Under the No-Action Alternative, the processes and procedures for Predator operations in Restricted Areas, MOAs, Class A, and Class D airspace currently being used would continue unchanged. The number of sorties conducted in the NTTR and R-2508 would continue at current levels. All of the airspace involved in supporting current Predator activities is capable of accommodating those levels of operations.

## 4.2 SAFETY

Numerous federal, civil, and military laws and regulations govern safety operations at ISAFAF. Individually and collectively, they prescribe measures, processes, and procedures required to ensure safe operations and to protect the public, military, and property. These regulations govern all aspects of the daily activity at the installation, and their applicability ranges from standard industrial ground safety requirements (e.g., wearing of hard hats and safety clothing) to complex procedures concerning aircraft flight and maintenance of munitions.

For the proposed action and each alternative, the elements of the proposal that have a potential to affect safety are evaluated relative to the degree to which the action increases or decreases safety risks to aircrews, the public, and property. Ground, fire, and crash safety are assessed for the potential to increase risk, and the unit's capability to manage that risk by responding to emergencies and suppressing fire. In considering explosive safety, projected changed uses and handling requirements are compared to current uses and practices. If a unique situation is anticipated to develop as a result of any of the proposals, the capability to manage that situation is assessed. Analysis of flight risks correlates Class A mishap rates and bird-aircraft strike hazards with projected airspace utilization and flying time associated with the action. When compared to similar data for current use of the airspace, assessments can be made of the magnitude of the safety impacts resulting from the change. Since fire and crash risk are also a function of the risks associated with mishaps and bird-aircraft strikes, those statistical data are also considered in assessing that risk. Finally, when new or altered risks arising from the proposals are considered individually and collectively, assessments can be made about the adequacy of disaster response planning, and any additional or modified requirements that may be necessary as a result of the action.

Impacts could be significant if an aspect of a proposal creates a ground, explosive, or flight safety risk that, either because of its severity and/or expected frequency would require immediate corrective action to alleviate an unacceptable condition.

### 4.2.1 Alternative A

#### 4.2.1.1 Ground Safety

Under Alternative A, additional Predator medium altitude (MQ-1) UAVs would be beddown at ISAFAF. Additionally, Predator high altitude (MQ-9) UAVs would be added when this system achieves Initial Operational Capability (IOC). To support all of the units at ISAFAF, a total of 68 MQ-1 aircraft and eight MQ-9 aircraft would be assigned to units at ISAFAF. All assigned aircraft would be flown at ISAFAF, although some aircraft may be rotated to coffins for storage and for ready deployment.

The fire and crash response capability would be improved to meet all requirements. Existing mutual aid agreements currently in effect with abutting communities will remain in effect, thus providing additional response support should it be required.

To support the proposed assignment of additional Predator UAVs, construction of new facilities would be required. Additionally, some existing facilities would be modified and/or upgraded to better satisfy operational, logistic, and safety requirements. However, no construction or modification activities would involve any unusual or extraordinary techniques. During

construction, best management practices would be employed, and standard industrial safety requirements and procedures would be enforced, thereby minimizing any safety risks associated with these activities.

All proposed new facilities would be sited so as to comply with all safety guidelines prescribed by Unified Facilities Criteria (UFC) pertaining to *Airfield and Heliport Planning and Design*.

Implementation of this alternative would involve ground activities that could expose workers performing the required site preparation, grading, and building construction to some risk. The U.S. Department of Labor (DOL), Bureau of Labor Statistics maintains data analyzing fatal and non-fatal occupational injuries based on occupation. Due to the varying range of events classified as non-fatal injuries, the considerations described below focus on fatal injuries since they are the most catastrophic. Data are categorized as incidence rates per 100,000 workers employed (on an annual average) in a specific industry (Standard Industrial Classification [SIC]).

In the assessment of relative risk associated with this proposal, it was assumed that the industrial classifications of workers involved are the Construction Trades (SIC-15, 16, and 17). Based on DOL data and considerations of worker exposure, a fatal injury would be statistically predicted to occur over the range of once every 70 to 190 years, depending on the specific labor classification. This equates to a probability of a fatal injury of from 1.2 to 3.1 out of 10,000 (USDOL 2001). Although DoD guidelines for assessing risk hazards would categorize the hazard category as "catastrophic" (since a fatality would be involved), the expected frequency of the occurrence would be considered "remote" (MIL-STD-882). While the potential result must be considered undesirable, risk is low. Strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with these construction activities.

#### **4.2.1.2 Explosive Safety**

Under Alternative A, facilities and infrastructure supporting munitions storage, handling, maintenance, and movement would be enhanced. One new munitions storage structure would be built at ISAFAP, and three new structures would be built at the munitions storage area at Nellis AFB. These structures would be earth-covered igloos, approximately 80 feet by 30 feet. The facilities would be sited so that the Quantity-Distance (safety) arc for the quantity of explosives stored would have no encroachment.

Approximately 50 Hellfire air-to-ground missiles per year currently are expended in conjunction with Predator training operations. Under Alternative A or Alternative B, missile expenditure would increase to 140 per year; under Alternative C, Hellfire use would increase to 100 per year. The transport of Hellfire missiles by truck convoy from storage at Nellis AFB to ISAFAP would increase from the current two to three convoys per year to up to eight per year under Alternative A or Alternative B and to four to five per year under Alternative C.

Whenever the Predator is armed with ordnance, it flies only in Restricted Airspace associated with the NTTR (personal communication, Anderson 2003). Therefore, no additional explosive safety risk to the public is associated with this activity.

### 4.2.1.3 Flight Safety

As discussed in section 3.2, since 1997 the Predator (RQ-1) has flown approximately 31,503 hours. During that time, the aircraft has been involved in 13 Class A mishaps, which include 12 aircraft destroyed (AFSC 2003). This equates to a Class A mishap rate per 100,000 flying hours of 41.27, and an aircraft destroyed rate of 38.09. These rates are high, however, they are not unusual for an aircraft in the early stages of its operational life. With a base of relatively few flying hours, a single accident has a significant impact on the computed rate. Also, as the aircraft matures and greater experience is gained in operating and maintaining it, fewer mishaps occur. As a comparison, during the first 5 years of its operational life, F-16 aircraft demonstrated a Class A mishap rate of 43.61 and a destroyed aircraft rate of 21.80 per 100,000 flying hours. Current rates for the F-16 aircraft are 4.19 and 3.96, respectively (AFSC 2003).

Based on current data, 1,254 Predator sorties are flown annually. If an average Predator sortie is six hours in duration, a Class A mishap would be statistically predicted to occur approximately once every 3.9 months. Under Alternative A, 3,948 Predator sorties would be flown annually for an estimated total of 23,688 flight hours. These operations include MQ-9 sorties, for which no safety data are available. However, for assessment, MQ-1 data will be used. At this level of operation, a Class A mishap would be statistically predicted to occur once every 1.2 months. However, based on the discussion above, this is a conservative estimate, and considering historic trends, the number of mishaps involving the Predator would reasonably be expected to decrease as more experience is gained with its operation.

The Predator is an unmanned vehicle; therefore, no Air Force flight crews are at risk in a Class A mishap. Furthermore, since the vast majority of the vehicle's flying time is accomplished in Restricted Airspace, minimal public exposure to risk would occur. The runway extension and operational limitations (no munitions) for south launch on Runway 13/31 would also serve to protect public safety.

As discussed in section 3.2, the general absence of attractant habitat throughout the region results in minimal risk from bird-aircraft strikes.

### 4.2.2 Alternative B

The proposals concerning procedures, facilities, and infrastructure changes, modifications, and improvements associated with Alternative A are also proposed under Alternative B. Therefore, in terms of ground and explosive safety issues, the assessments presented above remain the same for this alternative.

Under Alternative B, the 68 MQ-1 and 20 MQ-9 Predators would generate 4,680 sorties annually, for an estimated flight time of 28,080 hours. At this level of operation, a Class A mishap would be statistically predicted to occur once every 1.1 months. Based on the discussion above, risk to the public from flying mishaps is considered minimal.

### 4.2.3 Alternative C

The proposals for procedures, facilities, and other modifications at ISAFAP are consistent with construction at a normal military installation. Alternative C ground and safety issues would be

projected to be equivalent to the No Action Alternative. The installation fire protection systems would not be upgraded.

Under Alternative C, the 28 MQ-1 and 20 MQ-9 Predators would generate 1,510 Predator sorties annually for an estimated flight time of 9,060 hours. At this level of operation, a Class A mishap would be statistically predicted to occur once every 3.2 months. This is not substantively different from existing operations and would have no safety consequences. The increase in Hellfire missile use from 50 to 100 annually will require management changes in storage at existing bunkers because no new bunkers are constructed under Alternative C. An additional three annual shipments of Hellfire missiles from Nellis AFB to ISAFAP would follow existing procedures and routes. These established procedures and routes have been, and are expected to be, able to safely transport the additional munitions.

#### **4.2.4 No-Action Alternative**

Under the No-Action Alternative, military construction projects would occur at ISAFAP as they do at an active installation. There would be no beddown projects constructed. Any operational and safety enhancements that would result from beddown would not be realized. Current operations and maintenance activities would continue. Ground, explosive, and flying safety risks would generally remain unchanged.

Under this alternative, 1,254 Predator sorties would fly 7,524 hours annually. At this level of operations, a Class A mishap would be statistically projected to occur once every 3.9 months.



**The armed MQ-1 Predator is an unmanned aircraft in the early stages of its operational life. Hellfire air-to-ground missile usage is projected to increase for any beddown alternative.**

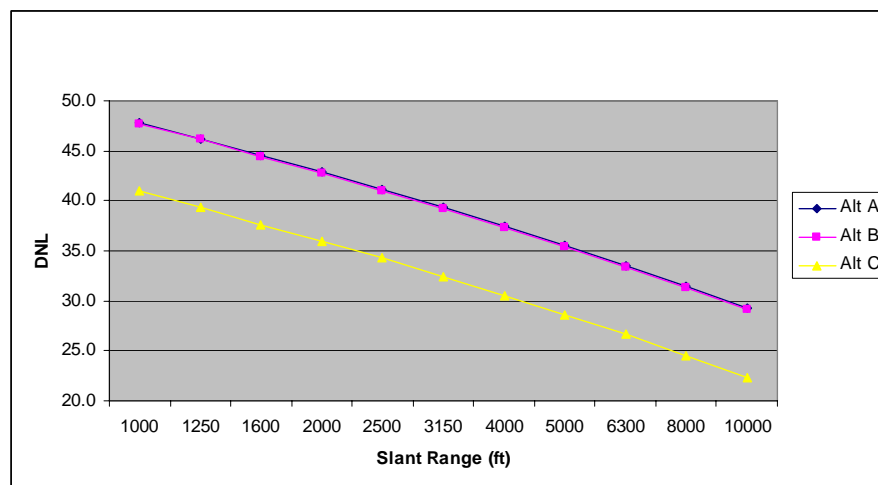
### 4.3 NOISE

The noise models and metrics used in this analysis have been simplified to reflect the small incremental nature of the Proposed Action. By making conservative assumptions, it is possible to predict the maximum increase in noise levels and contour area with available information regarding sortie rates, types of aircraft, and day and night operations.

#### Methodology

##### *ISAFAF Vicinity*

ISAFAF is used by the Thunderbirds demonstration team for training and practice and as a field for Flag and other military aircrew training exercises. Because of the dominance of F-15 and F-16 aircraft noise at the airfield, the mapping of noise contours is not expected to show visible changes for any of the Predator beddown alternatives. The noise emission characteristics of the Predator aircraft and proposed operations at the airfield have been converted into composite Day-Night Average Sound Level (DNL) versus distance curves. The contribution of Predator alternatives to the airfield noise environment is depicted in Figure 4.3-1. Note that the curves for Alternatives A and B are nearly the same and are barely distinguishable on the graph.



**Figure 4.3-1. Predator Airfield Noise Emissions**

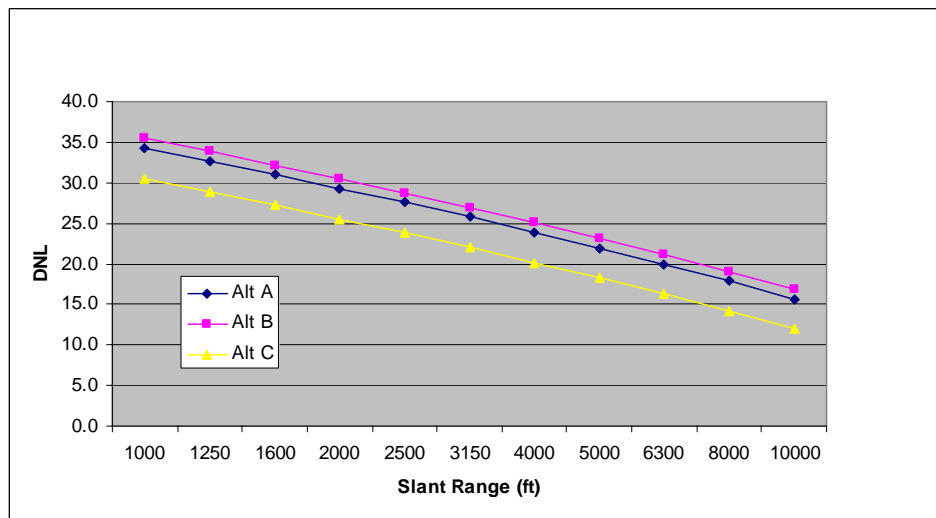
The effect of the proposed activity noise emissions on existing noise contours has been estimated by assuming that the slant range (the diagonal distance from the aircraft in the air to the observer on the ground) from the average Predator aircraft operation to the current DNL 65 contour is less than 1,000 feet. For reference, the DNL 55dB contour was also evaluated at an assumed and conservative reference distance of 5,000 feet (the DNL 55 contour has no land use compatibility implications).

The maximum increase in the respective DNL contours associated with the Predator alternatives does not exceed 0.05dB for any of the alternatives. This level of impact would not be discernable, therefore, is not significant. The analysis predicts an average increase in noise contour area of less than 1 percent. The consequence of Predator beddown on existing noise levels in the vicinity of ISAFAF is not significant and use of additional analysis with the NOISEMAP suite of models is not warranted.



### Range and Vicinity

Airspace noise impacts are known to be not only a function of the number of operations and noise emission characteristics of the proposed aircraft, but the time spent in the airspace and altitude distribution as well. Predator sorties are likely to spend more time in the airspace than other types of conventional sorties, and therefore it is assumed that the average Predator time in the airspace will approach that of all other users combined, amounting to approximately 6 hours per sortie. Predator sorties will cover a wide range of altitudes, with most missions calling for flight activity above 5,000 AGL. For purposes of evaluation, if all Predator sorties were evenly distributed between 1,000 and 10,000 AGL, the DNL values contributed by Predators would be as depicted in Figure 4.3-2. As shown, the proposed number of operations would not contribute more than DNL 36dB from any given altitude.



**Figure 4.3-2. Maximum Airspace DNL Contributions for Predator Alternatives**

The composite effect (total of all noise levels from all 11 altitudes) of Predator operations from all altitudes is 39.1, 40.3, and 35.4 DNL for alternatives A, B, and C, respectively. The extent to which these contributions would influence existing noise levels in the airspace is dependent on the current noise levels on the ground.

The noise levels that would result from the addition of the noise contribution of each of the alternatives at representative DNLs of 55 and 65 would not exceed 1dB for any alternative. This change is not discernable and would produce no discernable impact for any alternative. Additional analysis with the MR\_NMAP noise model, therefore, is not warranted.

#### 4.3.1 Alternative A

As shown in Figure 4.3-1 the noise level contribution of Alternative A is below DNL 50 even at observer distances as close as 1,000 feet. The maximum increase in DNL contour noise level for Alternative A does not exceed 0.05dB, therefore, Alternative A would result in no discernable change to existing noise levels in the vicinity of the airfield. The analysis predicts an average increase in contour area of less than 1 percent. The impact on existing noise levels in the vicinity of the airfield is not significant; and use of additional analysis with the NOISEMAP suite of models is not warranted.

As shown in Figure 4.3-2, the proposed number of operations for Alternative A does not contribute more than DNL 36dB from any given altitude. The composite effect (total of all noise levels from all 11 altitudes) of Alternative A operations from all altitudes is 39.1 DNL. The noise levels that would result from the addition of this noise contribution at the lower and upper end of the range of interest would not exceed 1dB, the noise impact of Alternative A is not significant, and additional analysis with the MR\_NMAP noise model is not warranted.

#### 4.3.2 Alternative B

The additional aircraft associated with Alternative B do not produce a noise effect different from Alternative A. The projected noise level is DNL 50 even at observer distances as close as 1,000 feet. The maximum increase in DNL contour noise level for Alternative A does not exceed 0.05dB. Alternative B would result in no discernable change to existing noise levels in the vicinity of the airfield.

#### 4.3.3 Alternative C

The eight additional aircraft associated with Alternative C are not expected to produce a noise effect discernibly different from the No Action Alternative. The projected DNL contour noise level for Alternative C would not be detectably different from the No Action Alternative.

#### 4.3.4 No-Action Alternative

The No-Action Alternative would result in no change from the existing Predator operations.

### 4.4 AIR QUALITY

Air quality impacts from a proposed activity or action would be significant if they:

- increase ambient air pollution concentrations above any NAAQS;
- contribute to an existing violation of any NAAQS;
- interfere with or delay timely attainment of NAAQS; or
- impair visibility within any federally mandated PSD Class I area.

In attainment areas, Prevention of Significant Deterioration (PSD) rules define a stationary source as "major" if annual emissions exceed 250 tons per year of VOCs, NO<sub>x</sub>, CO, SO<sub>x</sub>, or PM<sub>10</sub>. In serious nonattainment areas, New Source Review (NSR) rules define a stationary source as "major" if annual emissions exceed 50 tons of VOCs or NO<sub>x</sub> and 100 tons of CO, sulfur oxides (SO<sub>x</sub>), or PM<sub>10</sub>. Project emissions would be potentially significant if they exceed one of these thresholds. This is a conservative approach, as the project includes both stationary and mobile (non-permitted) emission sources, whereas these thresholds only apply to stationary sources.

According to the USEPA General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to impact air quality, as described above, in a nonattainment or maintenance area must undergo a conformity analysis. Under this rule, air quality impacts would be potentially significant if project emissions exceed one of the thresholds that trigger a conformity analysis (70 tons per year of PM<sub>10</sub> and 100 tons per year of

CO for CO and PM<sub>10</sub> serious nonattainment areas). A conformity analysis is not required in an attainment area. Since ISAFAF is located outside of the nonattainment area in Clark County, a conformity analysis is not required for activities occurring in the Indian Springs locale. Emissions from the proposed construction of munitions storage structures at Nellis AFB would be potentially significant if they exceed the conformity thresholds described above, since these activities occur in a nonattainment area.

This section summarizes the detailed air quality analysis presented in Appendix D.

#### 4.4.1 Alternative A

A summary of total construction and operational emissions from the implementation of Alternative A at ISAFAF and Nellis AFB are presented in Tables 4.4-1 and 4.4-2. These emissions would not result in long-term impacts on the air quality of Clark County.

**Table 4.4-1. Annual Construction Emissions under Alternative A**

<i>Construction</i>	<i>CRITERIA POLLUTANTS EMISSIONS (TONS PER YEAR)</i>				
	<i>CO</i>	<i>SO<sub>2</sub>*</i>	<i>NO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>VOC</i>
FY 03 Construction Projects (ISAFAF)	12.3	NA	46.3	61.3	3.7
FY 04 Construction Projects (ISAFAF)	6.5	NA	29.8	60.1	2.0
FY 05 Construction Projects (ISAFAF)	7.5	NA	31.4	60.2	2.3
FY 06 Construction Projects (ISAFAF)	9.9	NA	45.7	61.2	3.1
FY 06 Construction Projects (Nellis AFB)	0.4	NA	1.7	0.1	0.1
Emission factor for SO <sub>2</sub> is not available. SO <sub>2</sub> emissions from construction activities, however, are expected to be insignificant.					

**Table 4.4-2. Annual Operational Emissions Increases under Alternative A**

<i>Source</i>	<i>POLLUTANTS (TONS PER YEAR)</i>				
	<i>CO</i>	<i>SO<sub>2</sub></i>	<i>NO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>VOC</i>
Commuting Vehicles	16.4	0.01	1.7	0.1	2.3
Aircraft Operations (ISAFAF)	103.0	0.1	0.8	0.2	1.8
Ground Support Equipment	7.7	2.4	35.7	2.5	2.9
<b>Total Emissions (ISAFAF)</b>	<b>127.2</b>	<b>2.4</b>	<b>38.2</b>	<b>2.8</b>	<b>6.9</b>

#### 4.4.2 Alternative B

Construction emissions from Alternative B would be the same as for Alternative A (see Table 4.4-1). A summary of total operational emissions from the implementation of Alternative B at ISAFAF and Nellis AFB is presented in Table 4.4-3. These emissions would not result in long-term impacts on the air quality of Clark County.

**Table 4.4-3. Annual Operational Emissions Increases under Alternative B**

<i>Source</i>	<i>POLLUTANTS (TONS PER YEAR)</i>				
	<i>CO</i>	<i>SO<sub>2</sub></i>	<i>NO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>VOC</i>
Commuting Vehicles	23.3	0.01	2.4	0.2	3.3
Aircraft Operations (ISAFAP)	108.4	0.1	1.7	0.3	2.4
Ground Support Equipment	9.8	3.0	45.4	3.2	3.6
<b>Total Emissions (ISAFAP)</b>	<b>141.5</b>	<b>3.2</b>	<b>49.5</b>	<b>3.7</b>	<b>9.3</b>

**4.4.3 Alternative C**

Total emissions resulting from the implementation of Alternative C at ISAFAP are presented in Tables 4.4-4 and 4.4-5. The implementation of this alternative would result in a decrease of operational emissions of CO, NO<sub>2</sub>, PM<sub>10</sub>, and VOC compared to baseline, and in insignificant emissions of SO<sub>2</sub>. These emissions, therefore, would not result in significant long-term impacts on Clark County air quality.

**Table 4.4-4. Annual Construction Emissions under Alternative C**

<i>Construction</i>	<i>CRITERIA POLLUTANTS EMISSIONS (TONS PER YEAR)</i>				
	<i>CO</i>	<i>SO<sub>2</sub>*</i>	<i>NO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>VOC</i>
FY 03 Construction Projects (ISAFAP)	1.3	NA	1.5	28.2	0.4
FY 05 Construction Projects (ISAFAP)	0.9	NA	1.1	28.1	0.2
FY 06 Construction Projects (ISAFAP)	5.1	NA	21.0	29.6	1.6
* Emission factor for SO <sub>2</sub> is not available. SO <sub>2</sub> emissions from construction activities, however, are expected to be insignificant.					

**Table 4.4-5. Annual Operational Emissions Increases under Alternative C**

<i>Source</i>	<i>POLLUTANTS (TONS PER YEAR)</i>				
	<i>CO</i>	<i>SO<sub>2</sub></i>	<i>NO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>VOC</i>
Commuting Vehicles	-91.1	-0.04	-9.2	-0.7	-12.9
Aircraft Operations (ISAFAP)	-15.1	0.1	0.9	0.1	0.3
Ground Support Equipment	0.7	0.2	3.4	0.2	0.3
<b>Total Emissions (ISAFAP)</b>	<b>-105.5</b>	<b>0.3</b>	<b>-4.9</b>	<b>-0.3</b>	<b>-12.3</b>

**4.4.4 No Action Alternative**

Under the No Action Alternative, no additional Predator UAV would be added at ISAFAP. Therefore, no construction emissions and no emissions increase or decrease from the operational emissions associated with the current activities would result from this alternative.

## 4.5 GEOLOGY AND SOILS

This section addresses suitability of the proposed site for project construction and operation based on geologic conditions. Principal areas addressed in the analysis include: (1) direct and indirect impacts associated with alteration of topography; (2) erosion potential and permeability of on-site soils; and (3) seismicity.

### 4.5.1 Alternative A

Ground-disturbing activities would involve construction of new or expansion of existing facilities to support the Predator UAV (hangars and shops), trenching of new utility lines, road and gate improvements, and an extension of runway 13/31.

Most of the construction activity at ISAFAP would occur in the northeast portion of the base, which currently consists of primarily disturbed flat land. Much of the area has been previously graded. Excavation would likely be required for much of the new construction due to the potential for caliche and clay lenses at depth. Grading for the extension of the north end of runway 13/31 is in a previously cleared clear zone.

At the Nellis MSA site, substantial cut and fill grading would be necessary as part of the construction of three new munitions igloos and their entrances from Perimeter Road.

*Topography.* All grading and construction at ISAFAP would be completed in accordance with Uniform Building Code (UBC) requirements. In addition, a site-specific geotechnical report is in preparation for the proposed construction areas, and all grading and site preparation would be in accordance with requirements specified in the report. Limited changes would be done to the existing topography and grading would be performed in accordance with UBC Chapter 70 specifications and geotechnical consulting recommendations.

At the Nellis MSA site, cut and fill grading would result in an appreciable change to the existing site topography. The existing rolling hills and Mojave desert topography of the site would be modified for construction pads. Changes in topography would not result in unstable slopes or other geohazards. Grading would be conducted pursuant to established UBC and USAF standards and a detailed geotechnical engineering project plan.

*Erosion.* Site grading, construction of the proposed facilities, road widening, and extension of the runway at ISAFAP would result in temporary soil disturbance. Soils in the project are generally aridisols developed in carbonate parent material from local mountains. They are generally soft and easily erodible. The relatively flat terrain and low precipitation rates would minimize potential construction erosion. Erosion potential would be increased during periods of high winds or storms, especially during construction. Activities would be completed in compliance with geotechnical recommendations, common construction practices, local building permit requirements, and federal and state requirements. Provisions for both temporary and permanent erosion control, such as the use of plastic to cover spoil piles, would be implemented. Control measures would be monitored and maintained to ensure effectiveness. After construction, increased hard surfaces would have the potential to increase runoff and resulting erosion. Design factors will be incorporated into the projects to protect surface areas from erosion.

At the Nellis MSA site, grading could result in erosion of near-surface sediment during construction. Erosion could result in the sedimentation of adjacent drainages and topographic lows. Erosion potential would increase during periods of inclement weather or high winds. To reduce the potential for erosion, construction activities would be in compliance with established design standards, geotechnical recommendations, and all other applicable requirements. After completion of construction, buildings and pads have the potential to increase runoff to adjacent drainages. Construction plans will incorporate design characteristics to minimize erosion potential.

Compliance with established plans and policies and incorporation of standard erosion control measures into project design and construction requirements would reduce erosion potential to less than significant.

*Seismic Hazard.* Active faults located within 60 miles (97 km) of ISAFAF and the Nellis MSA site could result in strong seismically induced ground motion and associated ground shaking. Project designs would incorporate the criteria and requirements for the seismic design of buildings on defense installations set forth in the Department of the Army, Navy, and Air Force technical manual (TM) 5-809-10/NAVFAC P-355/AFM 88-3 Seismic Design for Buildings. Project design would also be in conformance with UBC standards.

#### 4.5.2 Alternative B

Geology and soils consequences associated with Alternatives A and B would be identical. No additional construction, beyond that identified for Alternative A, would be required for Alternative B.

#### 4.5.3 Alternative C

Geology and soils consequences resulting from Alternative C construction activities would be approximately one-half those associated with either Alternative A or Alternative B. The main area of soils disturbance at ISAFAF would be the extension of Runway 13/31 at ISAFAF. Provisions for both temporary and permanent erosion control would be implemented. Site grading and construction of the proposed facilities within the cantonment area would have no substantive effect on geology or soils. No construction would occur at Nellis AFB.

#### 4.5.4 No-Action Alternative

Under the No-Action Alternative, the existing ISAFAF facilities would not be modified and no beddown facilities would be constructed at either ISAFAF or Nellis AFB.

### 4.6 WATER RESOURCES

This section analyzes surface water and groundwater conditions to determine suitability for beddown construction and operation. Principal areas addressed include (1) potential erosion and water quality impacts associated with alteration of surface runoff patterns and (2) potential water supply impacts due to changed water demand.

#### 4.6.1 Alternative A

##### *Surface Water*

Construction-related excavation and grading activities required for Alternative A could potentially impact surface water quality during stormwater run-off and erosion events. Standard erosion control measures will be included in construction procedures. Design and construction would follow all applicable and appropriate regulations and ordinances regarding stormwater retention and treatment.

Additional hard surfaces from structures and paving would have the potential to concentrate rainwater and to increase stormwater run-off and erosion events. Facilities constructed as part of the project would include stormwater runoff control features such as gutters, concrete swales, and culvert drain systems.

##### *Groundwater/Water Supply*

Alternative A includes the addition of 101 personnel at ISAFAF, which would increase water demand at the base. The ISAFAF General Plan (USAF 2003) indicates that current demand on the ISAFAF water system is 88,000 gpd, or approximately 32.1 million gpy (98.6 AFY), for the existing 1,157-person workforce. The addition of 101 personnel would increase water demand to approximately 95,682 gpd or 34.9 million gpy (107.2 AFY). This assumes an average daily usage of 76 gpd per person for all additional project-related personnel. These computations are presented in Table 4.6-1.

**Table 4.6-1. Water Supply Analysis for ISAFAF**

<i>Parameter</i>	<i>Existing</i>	<i>Alternative A</i>	<i>Existing + Alternative A</i>
Personnel	1,157	101	1,258
Daily Usage (gpd per person) <sup>1</sup>	76.06	76.06	76.06
Total Daily Usage (gpd)	88,000 <sup>2</sup>	7,682 <sup>3</sup>	95,682
Total Annual Usage (million gpy/AFY) <sup>4</sup>	32.1/98.6	2.8/8.6	34.9/107.2
1. Approximate daily usage calculated as total daily demand/total personnel. 2. From the ISAFAF General Plan (USAF 2003). 3. Total daily usage calculated as Alternative A personnel x approximate daily per person usage. 4. Total annual usage calculated as total daily usage x 365 days (USAF 1996); 1 acre-foot = 325,851 gallons. Abbreviations: gpd: gallons per day; gpy: gallons per year; AFY: acre-feet per year			

The State of Nevada has authorized pumping of a total of approximately 192.6 AFY (62.7 million gpy) from the three wells (USAF 1998; USAF 2003). Implementation of Alternative A would increase the current water demand at ISAFAF by approximately 8.6 AFY. This increase would be within the State allocation for the ISAFAF wells and would not substantially affect the water supply.

#### 4.6.2 Alternative B

##### *Surface Water*

Surface water effects would be the same as Alternative A.

##### *Groundwater/Water Supply*

Alternative B includes the addition of 143 personnel at ISAF AF. Alternative B would result in an increased water demand of 4.0 million gpy (12.2 AFY). The total demand on the system would be 36.1 million gpy (110.8 AFY). This increase would be within the State allocation for the ISAF AF wells and would not substantially affect the water supply.

A comparison of annual water demands for Alternatives A, B, and C is presented in Table 4.6-2.

#### 4.6.3 Alternative C

##### *Surface Water*

Construction-related excavation and grading associated with Alternative C would be within the existing cantonment area and the extension of Runway 13/31. Additional hard surface areas would have the potential to concentrate rainwater and to increase stormwater runoff.

##### *Groundwater/Water Supply*

Following construction, the 560-personnel reduction associated with Alternative C would result in a lower demand by 47.7 AFY below that of the No-Action Alternative (see Table 4.6-2).

**Table 4.6-2. Comparison of Annual Water Demands for Alternatives A, B, C, and Existing**

<i>Existing Demand (million gpy/AFY)</i>	<i>Existing Demand plus Alternative A (million gpy/AFY)</i>	<i>Existing Demand plus Alternative B (million gpy/AFY)</i>	<i>Existing Demand plus Alternative C (million gpy/AFY)</i>	<i>Current State Allocation (million gpy/AFY)</i>
32.1/98.6	34.9/107.2	36.1/110.8	16.6/50.9	62.7/192.6

#### 4.6.4 No-Action Alternative

Under this alternative, existing ISAF AF facilities would not be modified and Predator beddown facilities would not be constructed. No change in water resources would occur.

### 4.7 BIOLOGICAL RESOURCES

This section analyzes the potential for impacts on biological resources from implementation of the proposed beddown. Ground disturbance from construction, habitat conversion, and increased activity at the ISAF AF and the MSA would be the primary sources of effects on biological resources. The use of Predator aircraft in NTTR airspace does not appreciably change the baseline condition for plants and wildlife and so would not have significant impacts on biological resources.



The significance of potential impacts on biological resources is based on: 1) the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource; 2) the proportion of the resource that would be affected relative to its occurrence in the region; 3) the sensitivity of the resource to proposed activities; and 4) the duration of ecological ramifications. Impacts on biological resources are significant if species or habitats of identified concern are adversely affected over relatively large areas or disturbances cause reductions in population size or distribution of a species of special concern.

#### **4.7.1 Alternative A**

Ground disturbance, conversion of several acres of highly disturbed desert scrub habitat to runway, and the increased activity associated with the project would occur within an existing highly disturbed area at ISAFAP. At the MSA, construction of new storage bunkers would eliminate desert scrub habitat that is less disturbed, but still within the fenced area bounded by the perimeter road at NAFB. Impacts on vegetation and wildlife habitat would be less than significant at both locations because a relatively small area would be affected and the quality of the habitat is poor.

The only special status species with a reasonable likelihood of occurrence within the project footprint at ISAFAP is the burrowing owl. Injury or mortality to burrowing owls, which are protected under the Migratory Bird Treaty Act and Executive Order 13186, could be significant because of the status and sensitivity of the species. The following procedures are recommended by the USFWS to avoid impacting burrowing owls:

If possible, construction will be scheduled outside of the burrowing owl nesting season (March-August). The construction site, including any borrows that may contain burrowing owls, will be surveyed by a qualified biologist prior to construction. Construction will not proceed until the absence of burrowing owls from the construction site has been confirmed, whereupon unoccupied burrows within the construction area may be collapsed and graded to ensure that the site does not attract burrowing owls. During the burrowing owl nesting season (March-August), if nesting burrowing owls are present, the nest site(s) shall be avoided until the owls have completed nesting and vacated the burrow(s) (USFWS 2003).

Desert tortoises could be present in the vicinity of the proposed storage bunkers on the MSA, although the quality of the habitat for tortoises is poor. The following is recommended to avoid potential adverse effects:

The area surrounding the construction site will be surveyed for desert tortoises according to the USFWS (1992) protocol. If tortoises are present or deemed likely to be present (on the basis of sign) in the area surrounding the construction site, construction activities will be monitored by a qualified biologist to ensure that tortoises do not enter the site. The construction site itself will be intensively surveyed by a qualified biologist prior to construction. Construction will not proceed until the absence of desert tortoises from the construction site has been confirmed. The Air Force will consult with USFWS regarding the relocation of any tortoises found to occur in the construction area.

With the above procedure, Alternative A would have no significant impacts.

##### 4.7.2 Alternative B

For purposes of the biological resources analysis, Alternative B is essentially the same as Alternative A. As with Alternative A, no significant impacts on biological resources are expected given the incorporation of the above procedures to avoid impacts on desert tortoise and burrowing owls.

##### 4.7.3 Alternative C

Alternative C results in a total area disturbed that is approximately one-half that of either Alternative A or Alternative B. Under Alternative C, no significant impacts on biological resources are expected, given the incorporation of procedures to avoid consequences to desert tortoises and burrowing owls.

##### 4.7.4 No-Action Alternative

No Predator beddown ground disturbance would occur to potentially affect biological resources.

#### 4.8 CULTURAL RESOURCES

Impacts on cultural resources are considered significant if a resource fulfilling any of the National Register criteria would be physically damaged or altered, would be isolated from the context considered significant, or would be affected by project elements that would be out of character with the significant property or its setting. If archaeological artifacts or features, or human remains are discovered during construction, all construction activities must cease and the Environmental Management Flight Chief and the NAFB Archaeologist must be notified immediately (NAFB 1998).

##### 4.8.1 Alternative A

###### *ISAFAF*

Section 106 of the NHPA requires that Federal agencies take into account the effects of their undertakings on historic properties. The Area of Potential Effect (APE) for the construction of new facilities related to the proposed action was inventoried and evaluated as part of an archeological survey of the entire ISAFAF facility. No significant or potentially significant archeological resources are recorded within the APE, and, therefore, no adverse impacts on archeological sites would occur with the implementation of the proposed action.

ISAFAF has no significant or potentially significant historic structures related to either World War II or the Cold War era (see section 3.8 for more details). Therefore, no adverse impacts on historic properties would occur through the modification of existing structures related to the proposed action.

ISAFAF has no recorded significant traditional resources (see section 3.8 for more details). Therefore, no adverse impacts on traditional resource would occur from the proposed action.

### ***Nellis AFB***

No significant or potentially significant archeological or traditional resources are recorded within the APE for the construction of three new munitions storage structures at Nellis AFB, and, therefore, no adverse impacts on archeological or traditional resources would occur with the implementation of the proposed action. No existing structures at Nellis AFB would be modified with implementation of the proposed action.

#### **4.8.2 Alternative B**

Alternative B construction would be the same as Alternative A. No adverse impacts would occur to archaeological, historic, or traditional resources.

#### **4.8.2 Alternative C**

Impacts on cultural resources under Alternative C would involve reduced construction of new facilities as compared with Alternative A or Alternative B. No adverse impacts on cultural resources would occur at either ISAF AF or Nellis AFB.

#### **4.8.4 No-Action Alternative**

No predator beddown ground disturbing activities would occur and no existing buildings would be modified.

### **4.9 VISUAL RESOURCES**

Potential visual impacts are evaluated in terms of landscape character, visual sensitivity, and visual dominance. The latter refers to the degree to which a change in the visual setting is subordinate to or dominates views. Aesthetic impacts would be considered significant if the proposed project were incompatible with the existing visual character of off base lands and were visible from sensitive areas that are generally accessible to the public, e.g., off base residences or scenic highways.

#### **4.9.1 Alternative A**

The primary visual impacts of Alternative A would be the new construction at ISAF AF. Most of the proposed new construction at ISAF AF would be visible to the traveling public on Highway 95. It would also be visible from some locations in the town of Indian Springs. The largest new buildings would be the two hangars to be constructed for 11 RS and 15 RS. Each would be approximately 30 feet high and approximately 200 feet long. They would be located a little over 1 mile away from the highway and at a site that is about 15 feet lower in elevation than the nearest part of the highway. At this distance, and with a somewhat lower elevation, they would not appear as very imposing structures to the viewing public.

All of the other new facilities are similar in scale and location to structures already in place at ISAF AF. They would “fit in” with their visual surroundings on the base and would not likely be even noticed by most people. New construction at ISAF AF would have some visual impact, but it would be less than significant given the context, location, and scale.

#### 4.9.2 Alternative B

The visual consequence of Alternative B would be the same as Alternative A.

#### 4.9.3 Alternative C

Alternative C would result in no new construction at ISAFAF to the northeast of the existing cantonment area. Most of the proposed new construction would not be noticeable to the traveling public on Highway 95. Given the context, location, and scale of the new facilities, there would be no visual impact on ISAFAF resulting from implementation of Alternative C.

#### 4.9.4 No-Action Alternative

The No-Action Alternative would result in no change from the existing condition. The additional aircraft operations would not occur and new facilities would not be built as part of the proposed action.



**New buildings proposed for construction under Alternative A or Alternative B would be east of these pictured buildings. Construction under Alternative C would add two buildings within the pictured cantonment area.**

#### 4.10 LAND USE

This section analyzes impacts of the proposed action and alternatives on land use patterns and land management plans. Analysis requires identification of management plans and use areas, followed by determination of potential effects due to construction and changes in operations.

#### **4.10.1 Alternative A**

##### ***Land Use Compatibility***

Implementation of Alternative A would require approximately 30 construction projects plus upgrades at ISAFAF and three munitions storage facilities at Nellis AFB (see Table 2-4). These projects would comply with existing land uses, because each project has been sited to facilitate functionality and increase operational capacities to support the beddown of additional Predator UAVs. Consequently, each construction component of Alternative A is inherently consistent with ISAFAF planning policies and guidelines and would be designed and sited to be compatible with existing land use.

Development under Alternative A would result in construction of Predator support facilities including two operations/maintenance hangars and a fuel maintenance facility near Runway 13/31. The location of these aircraft operations and maintenance facilities are in compliance with the conclusions of the Functional Relationships Analysis (see section 3.10.2).

##### ***Land Management Plans***

Development under Alternative A would require extension of Runway 13/31. The existing flightline would need to be extended to meet Class A requirements. Clear zone grading associated with the proposed extension of Runway 13/31 would extend somewhat beyond the ISAFAF north boundary fence. The ISAFAF fence separates the ISAFAF cantonment area from the rest of NTTR. The areas on both side of the fence were withdrawn for military use pursuant to PL 106-65. The boundary of DNWR extends east to west along the perimeter of the ISAFAF boundary fence and a portion of the munitions storage area and the graded portion of the Runway 13/31 clear zone already extend into the DNWR. The proposed extension of Runway 13/31 would not be different from, or result in incompatibilities with, existing land uses. There would be no change in land use from that which currently occurs in the general area.

#### **4.10.2 Alternative B**

Under Alternative B, the impacts on land use and land management plans would be the same as for Alternative A.

#### **4.10.3 Alternative C**

All construction under Alternative C would be in existing areas compatible with existing land use. The extension of Runway 13/31 is in a current runway overrun area. The structures would be within the existing ISAFAF cantonment area. Alternative C is compatible with existing land uses and consistent with existing management plans.

#### **4.10.4 No-Action Alternative**

Land use and land status near ISAFAF and Nellis AFB would remain as described for baseline. All operations would continue as under current conditions.

## 4.11 SOCIOECONOMICS

The socioeconomic consequences most likely to be noticed are those associated with a change in military personnel and their dependents and any others associated directly and indirectly with the proposed activities at ISAF AF. An influx would be persons who would not reside in the region in the absence of the project. A distinction is made between “project-related” population and “in-migrant” population. The former refers to those persons (of all ages) who are in some manner related to implementation of the project including workers and their dependents expected to contribute to the project but who currently reside in the region. In-migrants are persons who are in some manner related to implementation of the project, but who do not currently reside in the region and move to the region in response to implementation. It is impacts associated with this latter group that are the focus here.

Alternative A or Alternative B calls for additional military personnel assigned to ISAF AF. No additional civilian or contract employees are identified. Additional military personnel are assumed to come to the Nellis AFB/ISAF AF region from elsewhere in the nation. Depending upon the marital and family status of these personnel, they (and their family members) would have differing needs and, thus, impacts on local and regional socioeconomic resources. As examples: some would be assigned to housing (accompanied or unaccompanied) on, or controlled by, Nellis AFB; and some would have school-age children who would be enrolled in local schools. The analysis of impacts takes such variations into account. Alternative C would see a reduction in the number of military personnel assigned to ISAF AF.

Sizeable construction activity is proposed under Alternative A or Alternative B at ISAF AF over a 1-to-3-year period (FY04, FY05, and FY06). More limited construction would occur under Alternative C. This construction activity would stimulate the local and regional economy and provide employment through the use of local and regional companies. Most of the workers associated with this construction activity are assumed to reside within the Las Vegas area. A small proportion of construction could be attracted to the area from elsewhere.

An introduction of both new personnel and construction activity into the region would increase the number of business transactions taking place. This is related to the acquisition of goods and services and the consumption expenditures of the additional persons. A reduction in personnel would have a reverse effect.

A summary comparison of potential impacts associated with implementation of each of the alternatives is presented in Table 4.11-1 found at the end of this section. The table compares employment, population, housing, and public school enrollment for the construction and operations phases of the proposed project.

### 4.11.1 Alternative A

#### *Employment*

The number of jobs directly and indirectly associated with the actions proposed under Alternative A during the construction phase would peak in FY06 with about 765 new jobs (101 military, 125 secondary, and 539 construction). Over the long term (operations phase) employment would stabilize at 226 jobs (101 military and 125 secondary).

The additional jobs created during the peak year of the proposed project can be compared to the number of jobs that have been created, on average, each year in Clark County over the period 1990-2000. The project-related jobs peak would number 765, compared to the county average annual growth of almost 40,000 jobs, i.e., just under 2 percent.

The addition of 101 military positions to the active duty members and civilian contractors located at ISAFAF would represent a relatively small increase (10.9 percent) over the current total of 925 personnel. Essentially all personnel currently assigned to ISAFAF reside in the Las Vegas metropolitan area located over 35 miles to the southeast. These personnel commute to their workplace using a combination of private cars, carpool vehicles and busses. It is unlikely that new personnel would choose to reside in the community of Indian Springs (located adjacent to ISAFAF on the south side of U.S. Highway 95) since the housing and public and private services are limited. Secondary jobs are primarily expected to locate in the Las Vegas area, although a limited number of service jobs could be created in the Indian Springs area.

### *Population*

Project-rated population would peak during the construction phase in FY06 at 2,094 persons comprised of 225 military personnel and their dependents, 352 secondary workers and their family members, and 1,517 construction workers and their family members. During the operations phase of the project, the number of project-related persons would fall and stabilize at 577 (225 military personnel and their dependents and 352 secondary workers and their family members).

It is projected that potential in-migration would peak in FY06 with 411 persons, the majority of whom (225 persons) would be military personnel and their dependents. Over the long term, in-migrants are expected to stabilize at 260, of which 225 are military-related persons.

It is estimated that the majority, but not all, in-migrating persons would reside in communities in the vicinity of Nellis AFB such as North Las Vegas and Las Vegas. It is anticipated that this number would peak at 331 in FY06 and stabilize over the long term at 254.

Over the period 1990-2001, the resident population of Clark County has increased, on average, by over 65,000 per year. The population of the City of Las Vegas has increased by an average of 21,350 per year over the same period and that of the City of North Las Vegas by over 7,000 persons. The peak year addition of 412 persons represents a small proportion of such recent population increases.

### *Housing*

It is anticipated that the demand for housing located in the communities adjacent to Nellis AFB and ISAFAF would peak in FY06 with 153 dwelling units, the majority of which (86 units) would be needed by military personnel (both accompanied and unaccompanied). Over the long term, the demand for housing would level off at 99 dwelling units.

Over the period 1990-1999, an average of 24,200 housing units were authorized for construction each year in Clark County. The corresponding numbers for the City of Las Vegas and City of North Las Vegas were 8,340 and 2,180, respectively. These additions to the housing stock compare to a potential demand for 153 off-base housing units during the peak year.

The number and quality of housing in the community of Indian Springs, which is located adjacent to ISAFAF, is not likely to encourage active duty personnel and their dependents to reside there. The community has few employment opportunities (the largest being the combined elementary/middle/high school) that could provide employment opportunities for dependents. Additionally, residing in Indian Springs would require a commute (of over 35 miles) to the Las Vegas metropolitan area and/or Nellis AFB to a place of work as well as trips for everyday goods and services.

##### *Public Schools*

The number of school-age children entering public schools could number 86 during the construction phase and stabilize at 63 over the long term. The large majority of these children are family members of military personnel, most of whom reside off-base.

The potential numbers of additional pupils entering the Clark County School District as a result of implementation of the project are small in comparison to the growth in enrollment that has been taking place in the past years. Between school years 2000-2001 and 2001-2002 enrollment in the district increased by over 13,500 students. Potential impacts would represent less than 1 percent of this annual growth.

In the absence of any sizeable increase in the population of the community of Indian Springs, any impacts on the combined elementary/middle/high school would be negligible.

#### **4.11.2 Alternative B**

##### *Employment*

The number of jobs directly and indirectly associated with the actions proposed under Alternative B during the construction phase would peak in FY06 with about 859 new jobs (143 military, 177 secondary, and 539 construction). Over the long term (operations phase) employment would stabilize at 320 jobs (143 military and 177 secondary).

The additional jobs created during the peak year of the proposed project can be compared to the number of jobs that have been created, on average, each year in Clark County over the period 1990-2000. The project-related jobs would number 860, compared to the county average annual growth of almost 40,000 jobs, i.e., just over 2 percent.

The addition of 143 military positions to the active duty members and civilian contractors located at ISAFAF would represent a relatively small increase (15.5 percent) over the current total of 925 personnel. Virtually all personnel currently assigned to ISAFAF reside in the Las Vegas metropolitan area located over 35 miles to the southeast. These personnel commute to their workplace using a combination of private cars, carpool vehicles and busses. It is unlikely that new personnel would choose to reside in the community of Indian Springs (located adjacent to ISAFAF on the south side of U.S. Highway 95) since the housing available in the community is comprised predominantly of mobile homes and public and private services are limited.



### ***Population***

Project-rated population would peak during the construction phase in FY06 at 2,334 persons comprised of 318 military personnel and their dependents, 498 secondary workers and family members, and 1,517 construction workers and family members. During the operations phase of the project, the number of project-related persons would fall and stabilize at 817 (318 military personnel and their dependents and 498 secondary workers and family members).

It is projected that potential in-migration would peak in FY06 with 520 persons, the majority of whom (318 persons) would be military personnel and their dependents. Over the long term, in-migrants are expected to stabilize at 368, of which 318 are military-related persons.

It is estimated that the majority, but not all, in-migrating persons would reside in communities in the vicinity of Nellis AFB such as North Las Vegas and Las Vegas. It is anticipated that this number would peak at 405 in FY06 and stabilize over the long term at 254.

Over the period 1990-2001, the resident population of Clark County has increased, on average, by over 65,000 per year. The population of the City of Las Vegas has increased by an average of 21,350 per year over the same period and that of the City of North Las Vegas by over 7,000 persons. The peak year addition of 520 persons represents a small proportion of such recent population increases.

### ***Housing***

It is anticipated that the demand for housing located in the communities adjacent to Nellis AFB and ISAFAP would peak in FY06 with 194 dwelling units, the majority of which (122 units) would be needed by military personnel (both accompanied and unaccompanied). Over the long term, the demand for housing would level off at 140 dwelling units.

Over the period 1990-1999, an average of 24,200 housing units were authorized for construction each year in Clark County. The corresponding numbers for the City of Las Vegas and City of North Las Vegas were 8,340 and 2,180, respectively. These additions to the housing stock compare to a potential demand for 194 off-base housing units during the peak year.

The number and quality of housing in the community of Indian Springs, which is located adjacent to ISAFAP, is not likely to encourage active duty personnel and their dependents to reside there. The community has few employment opportunities (the largest being the combined elementary/middle/high school) that could provide employment opportunities for dependents. Additionally, residing in Indian Springs would require a daily commute (of over 35 miles) to the Las Vegas metropolitan area and/or Nellis AFB to a place of work as well as trips for everyday goods and services.

### ***Public Schools***

The number of school-age children entering public schools could number 112 during the construction phase and stabilize at 89 over the long term. The large majority of these children are family members of military personnel, most of whom reside off base.

The potential numbers of additional pupils entering the Clark County School District as a result of implementation of the project are small in comparison to the growth in enrollment that has been taking place in the past years. Between school years 2000-2001 and 2001-2002, enrollment in the district increased by over 13,500 students. Potential impacts would represent less than 1 percent of this annual growth.

In the absence of any sizeable increase in the population of the community of Indian Springs, any impacts on the combined elementary/middle/high school would be negligible.

#### **4.11.3 Alternative C**

##### ***Employment***

Under Alternative C there would be substantially less construction activity than under other beddown alternatives and a reduction of 560 active duty military personnel assigned to ISAFAP. The modest employment associated with construction of facilities (190 workers during FY06) would be offset by the reduction in military personnel (560 persons) and the associated reduction in secondary employment (694 jobs) in the regional economy associated with their presence. The net result would be a reduction in employment in FY06 of 1,064 jobs. Over the long term (operations phase) regional employment would be reduced by 1,254 jobs (560 military and 694 secondary).

It is unlikely that this reduction in regional employment would be detectable in the Las Vegas metropolitan area, especially given the current and expected future employment trends. Virtually all personnel currently assigned to ISAFAP reside in the Las Vegas metropolitan area located over 35 miles to the southeast. These personnel commute to their workplace using a combination of private cars, carpool vehicles and busses. It is unlikely that this anticipated reduction in personnel would affect the community of Indian Springs (located adjacent to ISAFAP on the south side of U.S. Highway 95) since the housing and public and private services present here are very limited. Secondary job losses are expected to occur within the Las Vegas metropolitan area.

##### ***Population***

It is projected that regional population would decline by 1,442 over the long term, the majority of whom (1,246 persons) would be military personnel and their dependents. It is estimated that the majority of out-migrating persons currently reside in communities in the vicinity of Nellis AFB such as the cities of North Las Vegas and Las Vegas.

Over the period 1990-2001, the resident population of Clark County has increased, on average, by over 65,000 per year. The population of the City of Las Vegas has increased by an average of 21,350 per year over the same period and that of the City of North Las Vegas by over 7,000 persons. The loss of 1,442 persons would not noticeably affect population change in the region.

##### ***Housing***

With the reduction in personnel, it is anticipated that a number of housing units would be vacated, especially in the communities adjacent to Nellis AFB. The potential number of housing units vacated would be approximately 550. Over the period 1990-1999, an average of 24,200

housing units were authorized for construction each year in Clark County. The corresponding numbers for the City of Las Vegas and City of North Las Vegas were 8,340 and 2,180, respectively. The reduction in demand for new housing associated with the population loss would not noticeably affect residential construction activity in the region.

The reduction in population is not expected to affect housing resources in the community. Any on-base housing units would be vacated. These units would then become available to other military personnel and their families.

#### *Public Schools*

The reduction in the number of school-age children in public schools could number almost 350 over the long term. The large majority of these children are family members of military personnel, most of whom reside off base.

The potential number of pupils leaving the Clark County School District as a result of implementation of the project is small (0.1 percent) in comparison to the enrollment of 244,684.

#### **4.11.4 No-Action Alternative**

Under the No-Action Alternative, existing and projected conditions would be unaffected. Those conditions are described for each respective socioeconomic resources in section 3.11.

#### **4.11.5 Comparison of Alternatives**

A comparison of potential impacts associated with implementation of each of the alternatives is presented in Table 4.11-1. The table compares employment, population, housing, and public school enrollment for the construction and operations phases of the proposed project.

**Table 4.11-1. Comparison of the Socioeconomic Impacts of the Alternatives**

<i>Resource</i>	<i>Alternative A</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>No-Action Alternative</i>
Employment (jobs)	Construction Phase: Direct: 101 Secondary: 125 Construction: 539 Total: 765 Long-Term: Direct: 101 Secondary: 125 Total: 226	Construction Phase: Direct: 143 Secondary: 177 Construction: 539 Total: 859 Long-Term: Direct: 143 Secondary: 177 Total: 320	Construction Phase: Direct: -560 Secondary: -694 Construction: 190 Total: -1,064 Long-Term: Direct: -560 Secondary: -694 Total: -1,254	Future growth and change in employment in the region is expected to continue in the absence of the proposed project.
In-Migrating Population (persons)	Construction Phase: Direct: 225 Secondary: 35 Construction: 151 Total: 411 Long-Term: Direct: 225 Secondary: 35 Total: 260	Construction Phase: Direct: 318 Secondary: 50 Construction: 151 Total: 520 Long-Term: Direct: 318 Secondary: 50 Total: 368	Construction Phase: Direct: -1,246 Secondary: -195 Construction: 53 Total: -1,388 Long-Term: Direct: -1,246 Secondary: -195 Total: -1,442	Future growth in resident population in the region is expected to continue in the absence of the proposed project.

**Table 4.11-1. Comparison of the Socioeconomic Impacts of the Alternatives (continued)**

<i>Resource</i>	<i>Alternative A</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>No-Action Alternative</i>
Off-Base Housing (dwelling units)	Construction Phase: Direct: 86 Secondary: 13 Construction: 54 Total: 153 Long-Term: Direct: 86 Secondary: 13 Total: 99	Construction Phase: Direct: 122 Secondary: 18 Construction: 55 Total: 194 Long-Term: Direct: 122 Secondary: 18 Total: 140	Construction Phase: Direct: -478 Secondary: -69 Construction: 19 Total: -528 Long-Term: Direct: -478 Secondary: -69 Total: -547	Future growth of the regional housing stock is expected to continue in the absence of the proposed project.
Public School (students)	Construction Phase: Direct: 58 Secondary: 5 Construction: 23 Total: 86 Long-Term: Direct: 58 Secondary: 5 Total: 63	Construction Phase: Direct: 81 Secondary: 8 Construction: 23 Total: 112 Long-Term: Direct: 81 Secondary: 8 Total: 89	Construction Phase: Direct: -319 Secondary: -30 Construction: 8 Total: -341 Long-Term: Direct: -319 Secondary: -30 Total: -349	Future growth in enrollment in the Clark County School District is expected to continue as employment and population rise in the absence of the proposed project.

## 4.12 ENVIRONMENTAL JUSTICE

The intent of environmental justice analysis includes determining whether the project has the potential to:

- Degrade the health and safety of low-income or minority communities disproportionately when compared to the regional population;
- Cause a disproportionately high and adverse impact on members of low-income or minority communities adjacent to the area of the proposed action; or
- Fail to provide for or encourage effective participation of members of low-income or minority communities adjacent to the area of the proposed action in the associated environmental review and decision-making process.

The identification of potential disproportionately high project-related environmental impacts on minority and low-income populations is achieved through consideration of all adverse project-related environmental impacts with respect to the affected population.

The proposed Predator beddown has been subject to public participation as required under NEPA. To facilitate public involvement in this project, the Air Force prepared and issued a Notice of Intent (NOI) to prepare an EA for Predator force structure changes at ISAFAP. The NOI was first published in the Las Vegas Review-Journal on 20 February 2003. A second NOI was published on 21 March 2003. The U.S. Air Force has requested assistance from agencies and the general public in identifying issues or areas of concerns for this environmental analysis.

### 4.12.1 Alternative A

The proposed beddown would change the operational facilities located within the jurisdiction of the Air Force and would not expand outside of lands withdrawn for military activities. The beddown and military training of Predator assets would not create additional health and safety

impacts on the nearby community of Indian Springs. Because Indian Springs has a lower and/or equivalent percentage of minorities and individuals living below the poverty level compared to Clark County and the state of Nevada, low-income or minority populations would not be affected disproportionately by any adverse effects resulting from the proposed action.

#### **4.12.2 Alternative B**

Under Alternative B, the impacts on minority and low-income populations would be the same as described in section 4.12.1 for Alternative A. No adverse impacts would occur.

#### **4.12.3 Alternative C**

The reduction in Predator-related personnel at ISAFAF would not be expected to have disproportionate impact on low income or minority populations in the Region of Influence.

#### **4.12.4 No-Action Alternative**

Under the No-Action Alternative, Predator operations at ISAFAF would not change.

### **4.13 INFRASTRUCTURE**

The following sections describe potential impacts on infrastructure that would result from the proposed beddown. Infrastructure elements examined include fire protection, police protection, water supply, wastewater collection and treatment, stormwater drainage, electricity, and communications.

#### **4.13.1 Alternative A**

##### ***Fire Protection***

The current fire protection system at ISAFAF is degraded and sufficient capacity does not exist to support additional Predator assets and associated personnel. However, development under Alternative A would involve improvements to the existing fire protection system. Under Alternative A, the construction of new facilities (i.e. new hangars, support buildings, and storage facilities) would require a new water storage tank and pump house with fire pumps.

The addition of new support facilities would require a new Fire Reporting and alarm system. The new hangar would have 360-degree fire suppression access and would be equipped with a low-level high expansion foam fire suppression system.

All new facility designs would accommodate the turning radius of the crash rescue apparatus. In addition, fire hydrants would be placed at the corners of all new facilities and would be sited in conformance with Engineering Technical Letter (ETL) criteria (USACE 2003).

All fire protection system improvements would be in conformance with the Uniform Facilities Criteria and ETL 02-15, Fire Protection Engineering Criteria – New Aircraft Facilities (U.S. Air Force Civil Engineer Support Agency 2001). Extension of existing fire system components and regulation of new building designs would result in adequate fire suppression services to support additional Predator assets at ISAFAF. The addition of new fire support facilities would be beneficial to ISAFAF and the immediate region.

### ***Police Protection***

Implementation of Alternative A would result in an increase of 101 personnel at ISAFAF, which would cause a small increase in demand for police protection services. With the NTTR security personnel stationed at ISAFAF, however, sufficient police protection services exist at ISAFAF to support the increased personnel.

### ***Water Supply***

The proposed construction activities at ISAFAF would not significantly add to the use of potable water. Alternative A includes the addition of 101 personnel at ISAFAF to support increase of Predator assets. A water line extension would be provided to support new facilities constructed east of Runway 13/31 (see Figure 4.3-1). The increased water demand at ISAFAF would be within the state allocation and would not substantially affect water supply.

### ***Wastewater Collection and Treatment***

The ISAFAF wastewater collection system would be expanded to meet the requirements of the proposed beddown. An extension of the existing system would be constructed to support new facilities constructed east of Runway 13/31 (see Figure 4.13-1). The existing wastewater treatment plant was designed with sufficient excess capacity to handle triple the current peak flows (see section 3.13.4).

### ***Stormwater Drainage***

The existing stormwater drainage system is considered inadequate to handle large amounts of water during occasional severe storms. Construction of hard surfaces could increase runoff and improvements in drainage associated with the construction would alleviate some existing inadequacies.

### ***Electricity***

Under Alternative A, a new 12.47 kV electrical substation would be installed near the East Gate (see Figure 4.13-1). Nevada Power Company would provide primary service (i.e., primary transformer protection and switching) to the new substation. ISAFAF would provide all secondary transformer protection and distribution (USACE 2003). The existing electrical system, with the construction of a new electrical distribution system, would be sufficient to provide adequate electrical services required for the maintenance and operation of additional Predator UAVs.

### ***Communications***

Under Alternative A, the existing communication system would be extended to serve the new facilities. The existing communication duct bank would be extended from the existing manhole MH13. This extension would be provided to the new communication room located east of Runway 13/31 (Figure 4.13-1). In addition, a vault would be installed outside of the new communication room in order to support the main duct bank. The GCS Facility would require additional conduits to support GCS antennas. A communication closet would be provided at the flight line end of the hangar for GCS equipment. All new facilities would require individual

satellite antennas for CATV requirements. New communication facilities would be designed in accordance with standards delineated in TLA/EIA 568A (USACE 2003). Planned communication system improvements would provide additional capacity that would be capable of handling the additional demand.

#### **4.13.2 Alternative B**

Alternative B infrastructure construction would be the same as Alternative A. Alternative B would include the addition of an MQ-9 FTU with 42 additional personnel. All public services and utility systems at ISAFAF would have sufficient capacity to accommodate the 42 additional military personnel. The same beneficial, but not significant, consequences would be expected for Alternative B as for Alternative A.

#### **4.13.3 Alternative C**

Infrastructure construction under Alternative C would be substantially less than under Alternative A or Alternative B. Alternative C would not include the upgraded fire protection system, the communication system, or utilities. Alternative C does not include the beneficial consequences associated with Alternative A or Alternative B. Public services and utility systems at ISAFAF would have sufficient capacity to accommodate the reduction in military personnel and the increase in Predator weapons systems. Current training, maintenance, and support activities would continue in compliance with established regulations, plans, and policies.

#### **4.13.4 No-Action Alternative**

Under the No-Action Alternative, existing ISAFAF facilities would not be modified and new Predator facilities would not be constructed. Current training, maintenance, and support activities would continue to be conducted in compliance with established regulations, plans, and policies.

### **4.14 TRANSPORTATION**

Potential transportation impacts can be projected by applying a set of level-of-service (LOS) criteria to the changes in travel demand associated with Alternatives A and B. The relationship between LOS and approach lane volumes for arterial roadways, assuming a 50 percent cycle split, is depicted in Figure 4.14-1.

Lane volumes approaching peak hour volumes of 675 vehicles per hour (VPH) may be characterized as approaching capacity and requiring improvements to traffic flow. For the purpose of this analysis, all Air Force personnel are assumed to use the Main Gate and construction traffic would be confined to the East Gate, which is right turn only to and from U.S. Highway 95.

The short-term traffic impacts of Alternatives A or B assume the same peak hour arrival and departure rates as employees with regular duty hours. Both construction and base-related traffic is typically spread over a longer time period due to shift work and the varying manpower requirements of individual construction projects and sites, so traffic volume estimates are higher than would actually occur.

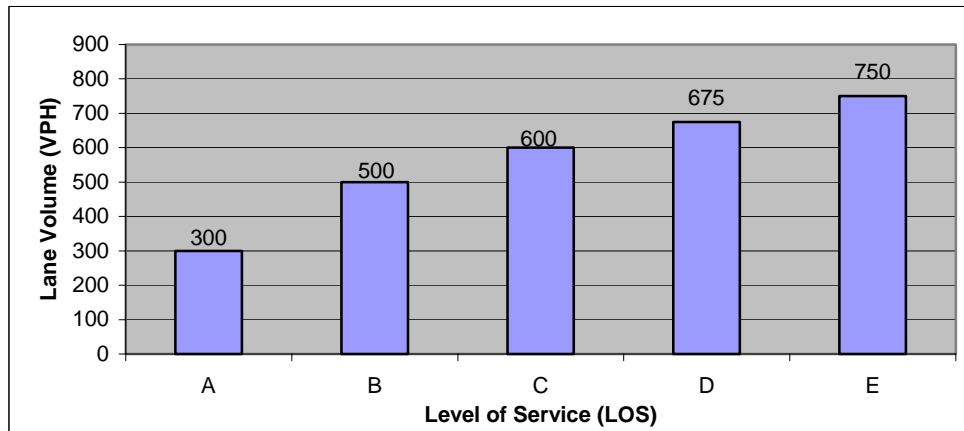


Figure 4.14-1. Lane Volumes and LOS for Arterial Roadways (VPH)

#### 4.14.1 Alternative A

Long-term employment is expected to increase by 101 positions at ISAF AF under Alternative A, bringing total employment to 1,258 jobs and increasing peak hour demand by approximately 8.7 percent. Peak hour volumes are expected to increase from 337 VPH to 374 VPH. As depicted in Figure 4.14-1, this level of demand is consistent with LOS B. Short-term construction employment is expected to increase by a maximum of 890 jobs due to the influx of 540 construction workers in FY06. These workers would use the East Gate, also providing LOS B. This level of service is two levels below the point where traffic volumes would require improvements.

Some improvement to long-term traffic flow would result from an upgraded East Gate. Even after improvement, however, the East Gate would be used only for construction traffic and during times of threat. In terms of traffic flow, the East Gate improvements are beneficial, but not significant.

#### 4.14.2 Alternative B

Long-term employment is expected to increase by 143 jobs at ISAF AF under Alternative B, bringing total ISAF AF employment to 1,300 jobs and increasing peak hour demand by 12.3 percent. Peak hour volumes are expected to increase from 337 VPH to 390 VPH. As depicted in Figure 4.14-1, this level of demand is consistent with LOS B. Short-term employment is expected to increase by a peak of 1,036 jobs due to the influx of 540 construction workers in FY06. These workers would use the East Gate, also providing LOS B. This level of service is two levels below the point where traffic volumes would require improvements. The long-term effects of East Gate improvements would be the same as Alternative A.

#### 4.14.2 Alternative C

Under Alternative C, short-term increases in construction traffic would be expected to be off-set by reductions in personnel assigned to ISAF AF. Long term employment would decrease by approximately 560 jobs at ISAF AF under Alternative C. This reduction in jobs would reduce peak hour traffic demand by over 50 percent. The East Gate would not be improved, but it



would continue to be used for construction traffic and in times of threat. The LOS for Alternative C is not expected to be different from the No Action Alternative.

#### 4.14.3 No-Action Alternative

Under the No-Action Alternative, no increase in employment or traffic volumes would occur. The Main Gate would continue to function at LOS B under similar assumptions to those applied to Alternatives A and B. The East Gate would not be improved.



Improvements to the East Gate, pictured here, would have minor beneficial consequences for transportation under Alternative A or Alternative B.

#### 4.15 HAZARDOUS MATERIALS AND WASTE

This section addresses the proposed siting and ongoing activities associated with proposed action and alternatives relating to hazardous materials use, hazardous waste generation and disposal, and effects on ERP sites. Principal areas of concern addressed in the analysis include (1) direct and indirect impacts associated with use and disposal of hazardous materials and waste, (2) potential impact to known ERP hazardous material sites.

##### 4.15.1 Alternative A

##### *Hazardous and Toxic Materials/Waste Management*

During construction activities associated with Alternative A, contractors and ISAF AF personnel would use hazardous and toxic materials, including primarily paint, adhesives, roofing materials, and other building materials. All hazardous waste disposal would continue to be managed by the DRMO, and in accordance with all state and local laws and all Air Force regulations. The hazardous waste disposal procedures and facilities currently used are adequate for the amount of waste generated by construction activities and would continue to be used.

After completion of construction, ISAFAF personnel would continue to use hazardous and toxic materials in compliance with applicable regulations and Air Force instructions as part of activities associated with the Predator UAV and NTTR support. Materials used would include paints, solvents, thinners, adhesives, aircraft fuel, diesel, gasoline, lubrication oils, batteries, anti-freeze, aerosol cans, and solvent.

The Air Force maintains data within the supply system that are used to generate listings of the hazardous materials that are used for various purposes/processes at the ranges and operations areas. Aircraft maintenance and other ISAFAF maintenance processes such as vehicle maintenance would continue. Existing Air Force pollution prevention processes, known as HAZMART for the management of procurement, handling, storage, and issuing of hazardous materials used on NTTR and ISAFAF, would be adequate for the foreseeable future and would be retained and used. Transportation of hazardous material would continue to be performed in accordance with the Department of Transportation requirements and regulations.

Some hazardous materials are inherent in the design and operation of the Predator aircraft. The MQ-1 multi-spectral targeting system contains beryllium on the surface of the lenses. The MQ-9 hazardous materials inventory lists various greases, lubricants, brake fluid, and fuel. The types of waste currently generated by Predator operations would continue under this alternative, although the amount of waste would likely increase with the beddown of additional Predator UAV assets. However, the hazardous waste disposal procedures and facilities are adequate for the amount of waste generated and would be retained and used. The Air Force would continue to manage the 90-Day Central Accumulation Site for some hazardous waste generators. Waste generation tracking procedures would remain in place. DRMO on Nellis AFB would continue to be responsible for the disposal of excess property and hazardous waste generated on ISAFAF.

#### *ERP Sites*

The Air Force investigates and remediates potential areas of soil and groundwater contamination through the Environmental Restoration Program (ERP). Some new construction would be located on ERP site LF-02. A privately owned vehicle (POV) parking lot is proposed for construction over a portion of the historic landfill. The Air Force has obtained an ERP waiver (see Appendix C) for site LF-02, which will allow the proposed construction. LF-02 is identified as an active ERP site; however, the landfill is not currently used and ERP activities associated with the site involve only long-term monitoring. The construction and use of the POV lot is not likely to affect the ERP monitoring program, and the location of LF-02 would not affect the use of the POV lot. Excavation associated with the construction of the POV lot would not be more than 2 feet and would not affect the site. No habitable structures would be placed on ERP sites.

The program of long-term investigation and remediation by ERP would continue on ISAFAF. Long-term monitoring at two landfills on ISAFAF (ERP Sites LF-01, LF-02) will continue to be accomplished by sampling three monitoring wells at each site annually, and new activities would not affect the monitoring program.

#### **4.15.2 Alternative B**

Activities associated with Alternative B that could potentially affect hazardous materials, waste, and ERP sites would be similar to those associated with Alternative A with a slight increase in the amount generated due to increased Predator use and assets. No significant impacts are anticipated from the production and management of hazardous waste and ERP sites.

#### **4.15.3 Alternative C**

Construction activity associated with Alternative C would use hazardous and toxic materials such as paint, adhesives, building materials, etc. All hazardous materials disposal would be managed DRMO in accordance with state and local laws and Air Force regulations. Alternative C would not include any construction on ERP site LF-02.

#### **4.15.4 No-Action Alternative**

Under the No-Action Alternative, the existing ISAFAF facilities would not be modified and new Predator facilities would not be constructed. No additional hazardous materials or waste would be generated.

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## **5.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

CEQ regulations (40 CFR Section 1508.7) stipulate that the cumulative effects analysis within an EA should consider the potential environmental impacts resulting from “the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions,” commonly referred to as “cumulative effects.” This section provides (1) the definition of cumulative effects; (2) a description of past, present, and reasonably foreseeable actions relevant to cumulative effects; (3) an assessment of the nature of interaction of the proposed action and alternatives with other actions; and (4) an evaluation of cumulative effects potentially resulting from these interactions.

### **5.1 CUMULATIVE EFFECTS**

The first step in assessing cumulative effects involves defining the scope of other actions and their interrelationship with the proposed action and alternatives. The cumulative effects analysis evaluates the interaction of multiple actions. Cumulative effects most likely arise when a relationship or synergism exists between a proposed action and alternatives and other actions occurring in close proximity or during a similar time period. Actions geographically overlapping or close to the proposed actions would likely have more potential for a relationship than those farther away. Similarly, actions coinciding in time with the proposed actions would have a higher potential for cumulative effects.

This EA analysis addresses three questions to identify cumulative effects:

- Could affected resource areas of the proposed actions interact with the affected resource areas of past, present, or reasonably foreseeable actions?
- If such an interaction exists, does an assessment reveal any potentially significant impacts not identified when the proposed action is considered alone?
- If such an interaction exists, and there are potentially significant impacts that are not identified when the proposed action is considered alone, what are those impacts?

In this EA, efforts have been made to identify all actions being considered and in the planning phase at this time. To the extent that details regarding such actions exist and the actions have a potential to interact with the proposed action in this EA, these actions are included in this cumulative analysis. Actions not occurring within or near the affected area of ISAF AF are not considered in this analysis. This approach enables decisionmakers to have the most current information available so they can evaluate the cumulative environmental consequences of related actions.

#### **5.1.1 Past, Present, and Reasonably Foreseeable Actions**

Nellis AFB and ISAF AF are active military installations that undergo continuous changes in mission and in training requirements. To support these requirements, these installations undergo near constant updating and revisions. This process of change is consistent with the United States Defense policy that must be ready to respond to threats to American interests throughout the world. As described in Chapter 2, the proposed beddown that would take place at ISAF AF is isolated from urban centers and is consistent with current ISAF AF and NTTR

activities. This section provides a discussion of the incremental contribution of past, present, and reasonably foreseeable actions.

#### 5.1.1.1 *Past and Present Actions Relevant to the Proposed Action and Alternatives*

Known past and present actions potentially resulting in cumulative effects include Air Force activities at NTTR, multiple airspace uses, changes to ISAFAF, personnel changes at the Nevada Test Site (NTS), modifications to prison facilities at Indian Springs, and modifications to U.S. 95. These actions are described below.

##### *Air Force Activities*

Past and present Air Force actions relevant to the proposed beddown include those described in *Renewal of the Nellis Air Force Range Land Withdrawal Legislative Environmental Impact Statement* (Nellis Renewal LEIS) (USAF 1999). The Nellis Air Force Range (now named Nevada Test and Training Range [NTTR]) land withdrawal was reviewed by Congress in 2000. Congress reauthorized the withdrawal and reservation, consisting of approximately 3.0 million acres, for use as an armament and high-hazard test area; training for aerial gunnery, rocketry, electronic warfare, and tactical maneuvering and air support; and other defense-related purposes. The Bureau of Land Management manages environmental resources on approximately 2.2 million acres of the NTTR pursuant to the Federal Land Policy and Management Act of 1976 and other applicable laws. Environmental resources on the remaining 826,000 acres of the NTTR are within the Desert National Wildlife Range and are managed by the U.S. Fish and Wildlife Service.

In 1995, the Air Force beddown an initial 20 Predator UAVs at ISAFAF. In 1996, another 25 were beddown, bringing total Predator UAVs operating out of ISAFAF in 1997 to 45 (USAF 1996). Facilities required for operation and maintenance of the UAVs and an Imagery Unit were constructed. The overall mission of Nellis AFB and the Reconnaissance Squadrons at ISAFAF remained the same.

Since 1995, existing buildings at ISAFAF have been modified to provide for hangar, maintenance, academic, runway, and utilities support facilities to support ongoing NTTR missions. Additionally, warehouses, academic facilities, and parking lots have been constructed at ISAFAF. Dorm facilities, an additional academic building, and an ordinance loading area and support facility are planned to be constructed to further support these missions. These building modifications and new construction are within the existing cantonment area.

##### *Airspace Uses*

Past and present airspace actions relevant to the proposed beddown include those described in *Renewal of the Nellis Air Force Range Land Withdrawal Legislative Environmental Impact Statement* (Nellis Renewal LEIS) (USAF 1999).

##### *Personnel Changes at Nevada Test Site*

The Department of Energy operates NTS, which is located 65 miles northwest of the City of Las Vegas, approximately 30 miles northwest of ISAFAF. The Test Site encompasses 1,350 square miles of desert and mountainous terrain and is surrounded on three sides by NTTR. The NTS

disposes of low-level radioactive waste onsite from the Site and from other Department installations. In addition, the Site stores mixed transuranic waste from Lawrence Livermore National Laboratory pending shipment to the Waste Isolation Pilot Plant. Pure transuranic waste may also be accepted for storage on a case-by-case basis. Between 1987 and 1998, NTS employment reduced from 11,500 to 3,390 persons. Additional reductions of 145 employees have been proposed. (*Las Vegas Review-Journal*, 2002).

#### *Modification of Prison Facilities*

The Southern Desert Correctional Center, Indian Springs Conservation Camp, Indian Springs Boot Camp, and High Desert State Prison are located on Cold Creek Road in Indian Springs, Nevada. The Southern Desert Correctional Center was opened in the early 1980s and has been remodeled to respond to changing needs. In the 1980s, a seventh housing unit was built outside of the original perimeter and an eighth high security, 200-cell housing unit was constructed near the center of the institution. The Southern Desert Correctional Center has a staff of 246 and is designed for a capacity of 914 persons. It has an operating capacity of 1,354 and an emergency capacity of 1,458.

The Indian Springs Conservation Camp and Indian Springs Boot Camp are minimum-security facilities housing 228 inmates: 168 in the conservation camp and 60 in the boot camp. The Indian Springs Conservation Camp and Boot Camp have a staff of 23 and are designed for a capacity of 228 persons. Operating capacity is 228 and emergency capacity is 228.

The High Desert State Prison is the largest major institution in the Nevada Department of Corrections and is designed for a capacity of 1,832 persons. Operating capacity is 1,816 and emergency capacity is 1,890. The institution opened September 1, 2000. The complex totals approximately 1,576,000 square feet of space.

#### *Modification of U.S. Highway 95*

Interstate 215 (I-215) and Clark County 215 compose the Las Vegas Beltway running from Interstate 515 in the southeast in a clockwise direction to Interstate 15 (I-15) in the south, the Summerlin Parkway in the west, U.S. 95 in the northwest, and I-15 again in the north. The Nevada Department of Transportation is proposing to extend I-215 northwest of Nellis AFB, to run as an extension from I-15 to U.S. 95 (*Las Vegas Review-Journal* 2001).

##### **5.1.1.2 Reasonably Foreseeable Actions that Interact with the Proposed Action**

This category includes foreseeable or proposed Air Force actions that have a potential to coincide, either partially in time or geographic extent, with the proposed action. These actions are described below or have been analyzed previously in the Nellis Renewal LEIS (USAF 1999).

Other currently proposed facilities at ISAFAF include the proposed Expeditionary Readiness Training (ExpeRT) program, which will put ACC security forces teams in a Nevada desert environment to prepare them for Aerospace Expeditionary Force deployments and contingencies. In addition, facilities in support of the Hellfire missile system are proposed for ISAFAF. The proposed Predator project facilities and other currently proposed project facilities at ISAFAF are shown on Figure 5-1.

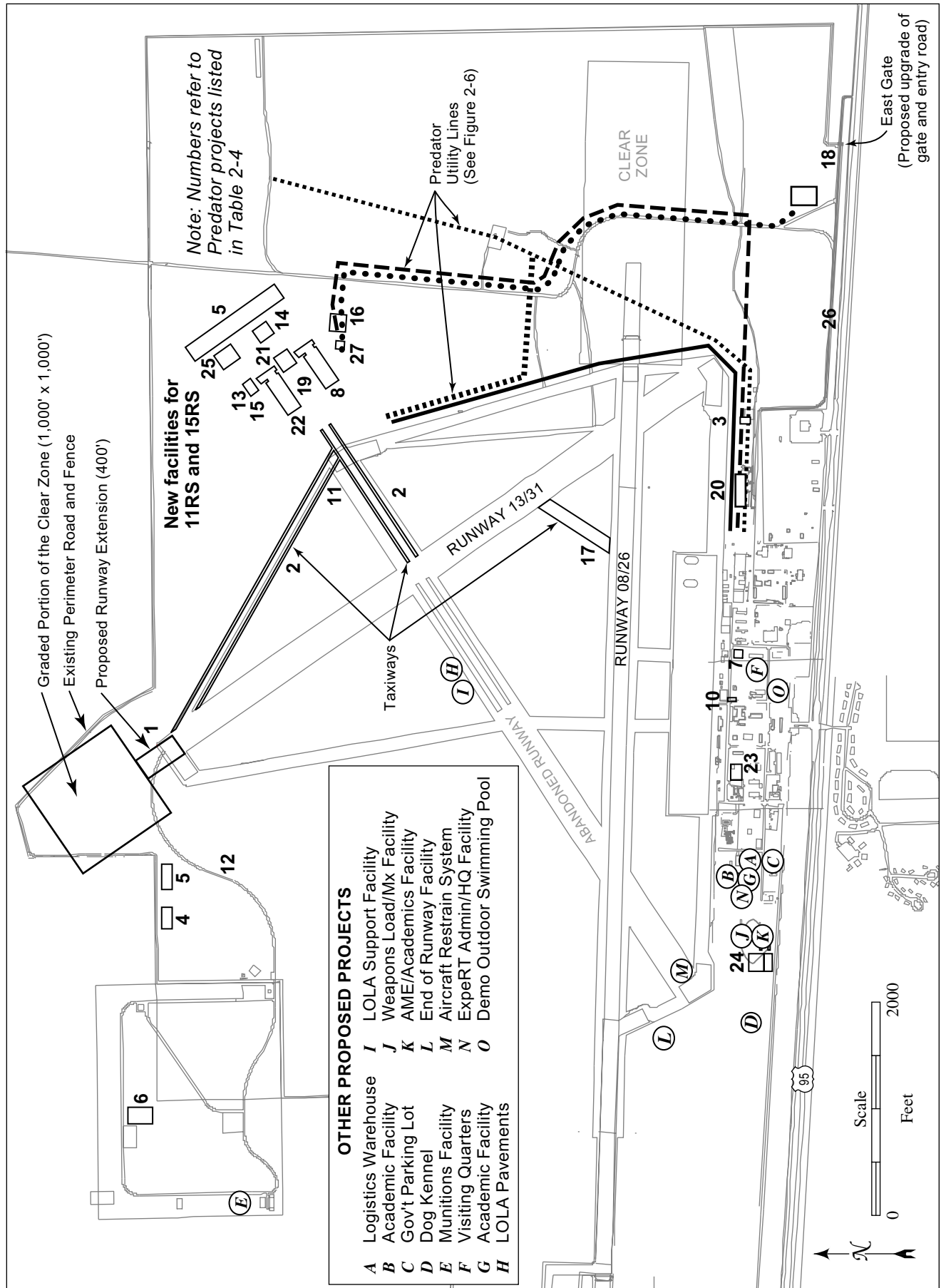


Figure 5-1. Predator and Other Project Facilities Currently Proposed at ISAFAF



In 2002 the Air Force proposed the Nevada Training Initiative (NTI), which called for construction of a High-technology Test and Training Complex (HTTC) and a Military Operations in Urban Terrain (MOUT) training area and associated facilities and infrastructure at NTTR and ISAFAF (USAF 2002c). Proposed NTI activities at or near ISAFAF include (1) construction of the facilities associated with the MOUT (i.e., academic, lodging, dining, and kennel facilities) at ISAFAF and (2) construction of these associated facilities on Air Force lands across U.S. 95 from ISAFAF. Construction of ground training facilities and infrastructure are projected to extend through 2007.

Aviation activities and airspace uses on NTTR and R-2508 will continue to vary, depending upon mission priorities. Airspace managers at both NTTR and Edwards AFB manage these activities. Additionally, commercial and general aviation activities within the Las Vegas region are projected to continue to increase in the foreseeable future.

Construction activities will continue to occur at Nellis AFB and ISAFAF, as they are active military installations, frequently undergoing changes in mission and in training requirements.

### **5.1.2 Analysis of Cumulative Impacts**

No specific projects have been identified under Alternatives A, B, or C that would produce incremental impacts when added to other past, present, or reasonably feasible future actions at ISAFAF or Nellis AFB. Nellis AFB and ISAFAF are active military resources that undergo changes in mission and in training requirements in response to defense policies, current threats, and tactical and technological advances. The auxiliary airfield, the base and the range, like any other major institution (e.g., university, industrial complex), require new training components, construction, facility improvements, infrastructure upgrades, and maintenance and repairs. All of these factors (i.e., mission changes, training updates, and facility improvements) would continue to occur before, during, and after the proposed action if it is selected.

#### **5.1.2.1 Air Force Activities**

Past and present Air Force activities at NTTR are described in the Nellis Renewal LEIS (USAF 1999). When the impacts of the present action are viewed cumulatively with the impacts described in the Nellis Renewal LEIS, no additional significant impacts are anticipated separate from those described in the Nellis Renewal LEIS. The addition of approximately 50 Predator UAVs to the 40 currently operating out of ISAFAF are not anticipated to have impacts beyond those described in Chapter 4.0.

Other activities include typical construction and maintenance activities at ISAFAF in support of current and future Air Force missions and those proposed in the March 2002 Nevada Training Initiative (NTI). Environmental consequences from NTI and typical construction activities affecting ISAFAF or Air Force lands across U.S. 95 include: increased, but minimal and temporary contributions to regional air emissions primarily from initial construction of associated training facilities; minimal disturbance to soils and vegetation on previously disturbed Air Force lands from construction involving grading, stabilization, filling, creation of culverts to channel storm water runoff, watering construction sites to limit fugitive dust, or the creation of road crossings to; and short-term construction noise. These actions when cumulatively considered with the proposed actions, would not significantly affect the resource

areas of the proposed actions and are minimal when compared to the construction activities occurring in the Las Vegas area from residential growth and development.

#### **5.1.2.2    *Airspace Uses***

Changes in sortie numbers would be scheduled with airspace managers and integrated into flight schedules according to mission priorities. These changes in airspace activities are not expected to significantly affect NTTR or R-2508 airspace use.

Any expansion of the Las Vegas International Airport or the establishment of a new airport between Jean and Primm, Nevada would require FAA review to determine the potential cumulative impacts such growth may have on the compatible use of airspace by all military and civil aviation interests.

#### **5.1.2.3    *Personnel Changes at Nevada Test Site***

Reduction in personnel at the Department of Energy's Nevada Test Site (NTS) has reduced the number of NTS employees commuting on U.S. 95. The changes in personnel at ISAFAP would have no discernible effect on traffic.

#### **5.1.2.4    *Modification of Prison Facilities***

Environmental consequences from prison facilities located near the community of Indian Springs do not geographically overlap with environmental consequences from proposed Air Force facilities. No cumulative effects would result from prison facility modifications and the proposed action.

#### **5.1.2.5    *Modification of U.S. Highway 95***

The environmental impacts of the construction of the I-215 connector between I-15 and U.S. 95 would not geographically overlap with the environmental consequences from the proposed actions at ISAFAP.

## **5.2        *IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES***

NEPA CEQ regulations require environmental analysis to identify "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (40 CFR Section 1502.16). CEQ guidelines describe primary irreversible and irretrievable resource commitments as uses of nonrenewable resources throughout a project that may be irreversible if removal or destruction of the resources occurs and cannot be replaced within a reasonable time frame (e.g., extinction of a threatened or endangered species, energy or mineral depletion) or if obstruction of the use of resources occurs after the project (e.g., a building over a cultural site).

Secondary impacts can result from environmental accidents or developments associated with a project such as explosive fires or highway improvements that provide access to previously inaccessible areas (CEQ Guidelines 15126(e)).

For Alternatives A, B, or C any potential environmental consequences would be short-term and temporary, or longer lasting, but negligible. Training operations would continue and involve consumption of nonrenewable resources, such as fuel used in vehicles and in aircraft. Use of

ordnance would involve commitment of resources and other chemicals. None of these activities would be expected to significantly decrease the availability of minerals or petroleum resources. Personal vehicle use by the personnel continuing to support the existing missions would consume water, fuel, oil, and lubricants. The proposed action would increase their use, but would not significantly affect the availability of the resources.

Construction would occur on previously disturbed areas and on some undisturbed lands. Minimal impacts would result on vegetation; however, the impacts are not irreversible or irretrievable. While construction of new facilities would incur soil disturbance and loss, use of geotechnical recommendations, common construction practices (e.g., watering roads while undertaking construction, building culverts to channel stormwater), and grading in accordance with Uniform Building Code requirements would localize and minimize soil loss. No additional impacts on cultural or archeological resources would result.



**Continued use of common construction practices, as pictured here at ISAFAF would result in no significant irreversible or irretrievable commitment of resources.**

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